EMPIRICAL STUDY: PATH ANALYSIS OF TOBIN'S Q FIRM VALUE ON INDONESIAN'S STATE OWNED BANKS

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ABSTRACT

This study examines the firm value of Indonesian state owned banks, using a panel data set, which is consist of 4 banks and all are public listed; during the period of 2010 to 2015. The aim is to exploring the causality relationship of internal and external factors on firm value by path analysis . The firm value is measured by stock market value based on Tobin's Q formula. Consecutively, the internal and external factors proxy by intellectual capital; Return on Assets; Good Corporate Governance; Gross Domestic Product and intervened by Nonperforming loan. Result of this research shown specific character of Indonesian state owned bank, which the firm's value is negatively impacted by all independent variables.

INTRODUCTION

State Owned Banks (SOB) were still growing steadily though there is tight competition at banking industry in Indonesia. SOB have stable position in domestic banking industry, which is appreciated by investors and any others related party; since state finance ministry be a back bone. Nevertheless on the secure circumstances, it is necessary do deep study on SOB firm's value to pursue the sustainability factors. For the purpose, this paper explores causality relationship between firm value with some independent variables, which are predicted have impact. Since banking sector is intellectually intensive or the most intensive industry in the management of intellectual capital (Firer and Williams, 2003) and required competence resources internally through corporate management and corporate strategy; which is comprise of Corporate Governance (CG) and Intellectual Capital (IC); Financial Performance Proxy by Return on Assets (ROA), then the externally factor is Gross Domestic Product (GDP). Sustainability in

banking depends on its asset quality performance (Kolapo et al., 2012.; Karim et al., 2010; Driga et al., 2010) and banks failure is corralated with asset quality (Samad, 2012). This paper will conduct a research associated with SOB firm value proxy by Tobin's Q ratio; expectedly the result will contribute useful guidance for the bankers and the regulators to anticipate turmoil and maintaining firm's value.

The objective of this paper is to identify the significant drivers on firm value from perspectives of bank internal factors namely Corporate Governance, Return on Assets and Intellectual Capital; externally factor is GDP. The first section of this paper is concern on study outline. Next, section two is review of literature concerning on dependent variables and independent variables, of which are exploring some theory from text book and published journal. Section three, describing objective and hypothesis; section four is methodology used in this study and the statistical data testing tools. Section five, is a dicussion on the findings and the analysis. Then the last, section six is make up conclusion and recommendation regarding to keep SOBs' firm value.

LITERATURE RIVIEW

Firm theory is the fundamental of this research, which is proxy by tobin's q ratio on firm value. Then, the theory is applied on this research which is refer to bank internal factors; such as corporate governance, intellectual capital, Return on Assets, then macroeconomic factor proxy by Gross domestic product.

2.1 Firm Value by Tobin's Q

James Tobin, a professor at Yale University, who is a winner of Nobel Prize,1981 in economics who is developed an idea of Q Ratio or also known Tobin's Q Ratio. The Q ratio is calculating firm value based on the formula of company's stock market value and total book value of lialibities divided by the replacement value of the firm's assets (Tobin, 1969). The Q ratio is formulated as:

$$\text{Q Ratio} = \frac{\text{Total Market Value of Firm} + \text{Total Book Value of Liabilities}}{\text{Total Book value of Assets}}$$

Basically Tobin's idea is bulid on portfolio theory, by hyphotized that combined market value of company should be equal to replacement costs of company assets. The formula calculation result is a ratio which will lead the investors evaluation on firm value. The ratio result is ranging from value of 1 to over than 1 or less than 1; when firm's value equal to 1, it means equal to investment (value = 1) ; when firm's value bigger than 1, it means more than investment (value > 1) and when when firm's value smaller than 1, it means less than investment (value < 1). Eventhough, Q ratio has difference evaluation bases with other investment theories, but it readily observable by the marginal efficiency while the cost of capital are not (Oulton, 1981). Tobin's Q theory has been used in wide range and variety of phenomena, such as for measuring business performance (Chen and Lee, 1995). Many researchers have use the Q ratio to study the effects of market power on performance (Anandhi et al., 1999). Wernerfelt and Montgomery (1988), using Tobin's Q as a measure of performance and firm success. There are some other measuring system, but Tobin's Q is quite simple method which the results can convince business and academics

practitioner chosen to ensure data availability for most of the sample (Gompers et al., 2003; Shin and Stulz, 2000).

2.2 Corporate Governance on Firm value

Corporate Governance is a fundamental factor in raising firm value, which is reflected by corporate performance in terms of financial performance, corporate network growth and any others fundamental factors. Eventhough, it has differs impact among differ countries, since disparate governance structures at each country of dissimilar social, economic, and regulatory conditions (Rouf, 2011). Nowday, corporate governance have been implemented broadly. In practically, used to be a must; since it is intergrated system of rules, practices and processes by which a company is directed and controlled. As said in OECD Principles of Corporate Governance (OECD, 2008) and Bank for International Settlement (BIS, 2015); The corporate governance is defined as a management system framework by taking account to balancing purposes and benefits of shareholders and stakeholders; by transparency, consistency, clearly articulate responsibilities among different supervisory, regulatory and enforcement authorities. Eventually, the objective of corporate governance is improving the firm's performance. Gompers et al., (2003) did research in US market, they analyse the relationship between corporate governance and long-term equity returns, firm value and accounting measures of performance. Their results confirmed that well-governed companies have higher equity returns, are valued more highly, and their accounting statements show a better operating performance. The corporate governance is positively associated with firm value, this finding is claimed by the reasearch of Drobetz et al,. (2004) for Germany; Jong et al., (2001) for the Netherlands; Black (2002) for Russia and Taufik et al., (2017) for Indonesia. Base on the earlier researchers' result; it leads to a conclusion that corporate governance increases firm value in two circumstances, which are investors trust and less risky (Bauer et al., 2003). Corporate governance is critical key to achieve good performance of firm (Mansourinia et al., 2013). Corporate governance methodology is a system for evaluating and helps to uncover risks and opportunities. The implementation of corporate governance is emphasizing on separation of ownership, control and managerial motivation to support the field of risk management to lower coporate risk variability (Jin and Jorion, 2006). Corporate governance is as a means of managerial to overcome corporate financial mismatch structure (Miller and Modigliani, 1958) and to balance the turmoil of stakeholders interest as the main determinant of corporate policy, as of the substance of stake holder theory (Freeman, 1984). On previous research of corporate governance's role on firm value, who have been done by Vo & Nguyen (2014); El-Faitouri (2014) in different countries,found both impact either positive or negative relationship. Effective and integrated risk management is part of good corporate governance; in eventually to achieve company's objectives and its financial targets. In this paper the corporate governance is proxied by number of directors; number of commissioners; percentage of independent commissioners in commissioner board; and number of audit committee members.

2.3 Intellectual Capital (IC) on Firm Value

Intellectual Capital is considered as well as an important element in an organization and grant to a success of company in term of financial and operational. IC

indirectly is a measuring instrument of enterprise operation efficiency value added; through Value Added Intellectual Coefficient (VAIC) (Pulic, 2000). The IC indicators instead of human capital efficiency (HCE), structural capital efficiency (SCE) and capital employed efficiency (CEE). The formula of IC and the indicators are shown as follow:

$$\text{CEE (Capital Employed Effciency)} = \frac{\text{Value Added (VA)}}{\text{Capital Available (CA)}}$$

$$\text{SCE (Structural Capital Effciency)} = \frac{\text{Structural Capital (SC)}}{\text{Value Added (VA)}}$$

$$\text{HCE (Human Capital Effciency)} = \frac{\text{Value Added (VA)}}{\text{Human Capital (HC)}}$$

VAIC (Value Added Intellectual Coefficient) = CEE + SCE + HCE

Note:

Value Added (VA) = OP + EC + D + A

Where:

OP	= Operating Profit;
EC	= Employee Cost;
D	= Depreciation;
A	= Amortization

Capital Available (CA) = Equity / Net Profit

Human Capital (HC) = Total Employee Salary / Total Employee Cost

Structural Capital (SC) = Total VA – HC

In the research of Carlucci et al., (2004); Hsu and Fang (2009); Kang and Snell (2009); Kong and Thomson (2009); Longo et al., (2009); Phusavat et al., (2011); Sharabati et al., (2010); Shih et al., (2007); Shih et al., (2010); Yang and Lin (2009); Youndt et al., (2004) found that IC has an important role in firm's competitiveness, innovativeness, financial, and non-financial performance. On the other hand, IC also serves on corporate strategic management to balancing between risks and opportunities associated with company performance outcome (Andersen, 2008; Mohammeda and Kanpkova, 2016). The IC is intangible asset in company, have been declared by Edvinsson & Malone (1997); Frykman & Tolleryd (2010); Bayburina & Golovko (2009) and stated that intellectual capital as all non-financial assets which is not reflected in the balance sheet. Despite of IC has many interpretation, it caused by different perspective under different circumstances. It means IC has no universal definition (Tawy & Tollington, 2012), but for sure the IC has contribution in enhancing corporate performance through knowledge transforming into capitalization (Brennan, 2001; Wang, 2008). Due to IC contribuites positive impact on corporate performance (Bontis et al., 2000; Ismail et al., 2005; Tayles et al., 2007), it be a driven factor of corporate performance (Gan & Saleh, 2008). Subsequently, IC is being a strategic resource allowing the company to create value added (Riahi-Belkaoui, 2003; and Youndt et al., 2004). The contribution of IC on firm value is shown on simple circumstances; firstly, in any company operation either unwittingly or aware, has been executed as strategy in human capital, capital employed and structural capital; what are known as IC's indicators.

Then secondly, those IC's indicators considered to be review when company's performance either on rise or slump.

2.4 Return on Assets (ROA) on Firm Value

Return on Assets (ROA) is a company tool to measure the profitability over its total assets.The CIMA (Chartered Institute of Management Accountants Official) Terminology defines the Return on Assets as dividing the operating profit by total assets. ROA is a measure of a firm's profit generated relative to its investment in assets. It is aprofitability ratio, to measure company efficiency in terms of assets management to generate earnings.This ratio shows the amount of profit earned relative to the investment in total assets (Fraser & Ormiston, 2004).High ROA number is favorable for the company and investor; since the company is earning more money on less investment. As the main purpose of a company is to increase the profit, ROA really helps as it can show how to increase their profit with less investment, which is formulated as:

$$ROA = \frac{Net\ Income}{Average\ Total\ Assets}$$

Return on Assets (ROA) describes indicators whether firm's assets are under or over utilized and be a measurement of firm peformance (Al-Matari et al., 2014). Then, in the research of Aggarwal and Padhan (2017), found thatROA seems to have a significant negative relationship with firm value.The finding confirmed that ROA has a contribution in firm valuation.

2.5 GDP on Firm Value

GDP growth has an impact on public earning, generally has impact on all economic sectors by increasing economic power, which is covering business transaction volume in both side of consumers and producers. Generally, the circumstances lead to improving of social buying power and firm or corporate sustainability. GDP is a measurement of economic growth, of which has a significant positive impact on firm quality in hospitality industry (Aggarwal and Padhan, 2017). Steady economic growth tend to push business activities and stimulating investment intentions, which in essence to widen firm business and firm's value.

2.6 Non Performing Loan (NPL) on Firm Value

The core of NPL is to defined the loan quality, which is not perform in interest payment and or the principal payment are past due by 90 days or more (IMF, 2004).

Non Performing Loan (NPL) ratio is calculated by formula; sum of total problem loan devided by sum of total loan:

$$NPL = \frac{Sum\ of\ total\ problem\ loan}{Sum\ of\ total\ loan}$$

NPL ratio is to measure loan delinquency, in term of the debtors obedience to pay loans interest and or loans principle. The higher NPLs ratio effecting firm (bank) financial performance, which is lead to negative evaluation in view of investors on firm performance. In other words, loan performance in banking industry is main assessment; and the banking core earning is interest income. The higher the NPL ratio affect the lower income and it is

lending problem; part of banking business risk (Chimpa, 2002; Wangai et al., 2014). Eventually, NPL has a statistically significant impact on stocks price in capital market which is a reflectionoffirmsvalue (Hashem et al., 2017). In the research of Jim (2016) in Indonsian banking industry, has resulted that NPLs are confirmed impactedon banking sustainability performance which is represented of firm value in banking industry; particularly in financial performance. Nowday, the NPLs ratio is one of the most concerning matters in banking industry; in line with suggestion of international banking communities (Basel III, 2012) target to enhance capital base in banking industry to overcome the credit delinquency or credit riskmanagement (www.bis.org).

OBJECTIVE AND HYPOTHESIS

3 (a) Objective

Basically this research has two objectives. Firstly is to test the relationship of dependent variable and the independent variables, by undertaking path analysis between GDP, GCG, IC and ROA as independent variables and NPL as intervening variable to firm value as dependent variable. Then, secondly is develop a statistical model of firm value, then do analyse and identify the relationship between independent variables directly on dependent variables and the indirect relationship through intervening variables.

3 (b) Hypothesis

Referring to the descriptions of literature review , it is indicated that banking firm value has a relationship with NPL, GCG , IC, ROA and GDP. From which this study draws hypothesis, namely :

H_1: GCG factors have a considerable impact on Firm Value

H_2: IC factors have a considerable impact on Firm Value.

H_3: Return on Asset (ROA) have a considerable impact on Firm Value.

H_4: Gross Domestic Product (GDP) have a considerable impact on Firm Value.

RESEARCH METHOD , DATA COLLECTION AND MODELLING

4.1 Research Method

The research method is base on path analysis, which is consist of theoretical analysis and followed by statistical analysis. Both analysis done through multiple and partial regression analysis, and statistical controls. The Researcher attempts to demonstrate both quantitatively and logically a pattern of causality by providing estimates of the total direct and indirect effects of one variable on another (Swatos Jr., 2007). The regression is running to estimate the causalities and correlations between variables, which is reflected by path diagram. Path analysis model is build on two exogenous variables. The tested output describe direct effect and indirect effect of exogenous variables on endogenous variable, which is reflected in regression model (equation).

$$Y = \beta_1 X_1 + \beta_2 X_2 + \varepsilon$$

And illustrated in the following path diagram (figure 1):

Figure – 1: *Path Diagram*
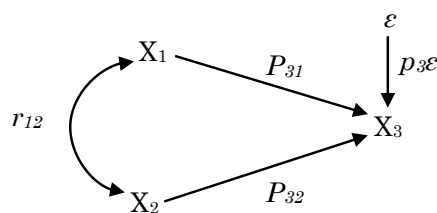
4.2 Data Collection

The population of this paper is 4 state owned banks of Indonesian, comprised of Bank Mandiri, Bank Rakyat Indonesia, Bank Negara Indonesia and Bank Tabungan Negara. The research is analyzing about those banks' firm value by run a relationship test on banks' internal variables and macroeconomics variable on banks' firm value through path analysis method. The research data are collected from the bank financial report and any other economics report from reliable sources. The variables are consisted of dependent variable Firm value; independent variables stand for Intelectual capital, Good Corporate Governance, Return on Asstes, Gross Domestic Product and Nonperformig Loan as intervening variable. The collected data is performed in balanced panel consisted of 6 cross section on 4 state owned banks and 6 time series data in the period of the year 2010 to 2015. The test is process by software Eviews 6.

4.3 Model Estimation

Base on path analysis theory; the path diagram model in this paper is constructed as follow (figure 2):

Figure – 2: *NPL & LNFV Path Diagram*
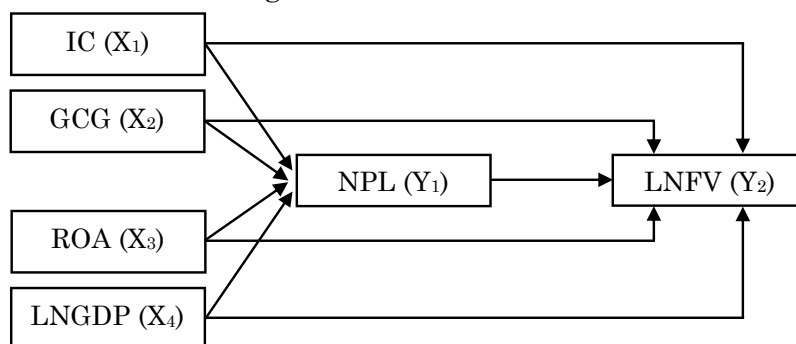
Which:

IC	: Intellectual Capital (X_1)
GCG	: Good Corporate Governance (X_2)
ROA	: Return On Assets (X_3)
LNGDP	: Economic Growth (X_4)
NPL	: Non Performing Loan (Y_1)
LNFV	: Firm Value (Y_2)

4.4. Empirical Model

By the path diagram model, it converted to structural equation, of which to estimate the relationship between variables in term of direct effect, indirect effect and total effect; namely:

4.4.1 Model 1

Impact of Intellectual Capital (IC), Good Corporate Governance (GCG), Return on Assets (ROA), and Economic Growth (LNGDP) on Nonperforming Loan (NPL)

$$NPL_{i,t} = \rho NPL_{i,t}IC_{i,t} + \rho NPL_{i,t}GCG_{i,t} + \rho NPL_{i,t}ROA_{i,t} + \rho NPL_{i,t}LNGDP_{i,t} + \varepsilon_{1i,t}$$

Follow on the path analysis's rule, is a must to run some test, Chow test and Hausman test on variables and models; the result of model 1 is preferred on Fixed effect model with SUR (seemingly uncorrelated Regression), since the test on model are not comply with the assumption of homoscedisity and non serial correlation (see attachment 1). The result of the empirical model 1 is:

$$NPL_{i,t} = -0,2217\ NPL_{i,t}IC_{i,t} - 0,0216\ NPL_{i,t}GCG_{i,t} - 1,2044\ NPL_{i,t}ROA_{i,t}$$
$$- 3,1747\ NPL_{i,t}LNGDP_{i,t} + \varepsilon_{1i,t}$$

4.4.2 Model 2

Impact of intellectual capital (IC), Good Corporate Governance (GCG), Return on Assets (ROA), and Economic Growth (LNGDP) on Firm Value (LNFV) through Nonperforming Loan (NPL) as intervening variable
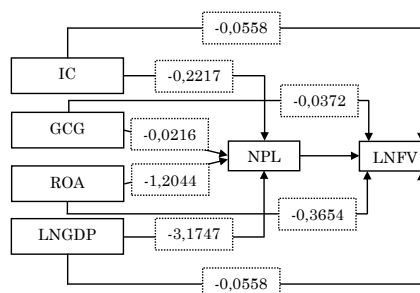
$$LNFV_{i,t} = [\rho LNFV_{i,t}IC_{i,t} + \rho NPL_{i,t}IC_{i,t} \times \rho LNFV_{i,t}NPL_{i,t}]$$
$$+ [\rho LNFV_{i,t}GCG_{i,t} + \rho NPL_{i,t}GCG_{i,t} \times \rho LNFV_{i,t}NPL_{i,t}]$$
$$+ [\rho LNFV_{i,t}ROA_{i,t} + \rho NPL_{i,t}ROA_{i,t} \times \rho LNFV_{i,t}NPL_{i,t}]$$
$$+ [\rho LNFV_{i,t}LNGDP_{i,t} + \rho NPL_{i,t}LNGDP_{i,t} \times \rho LNFV_{i,t}NPL_{i,t}]\ \varepsilon_{2i,t}$$

Follow on the path analysis's rule, is a must to run some test, Chow test and Hausman test on variables and models; the result of model 2 is preferred on Fixed effect model with SUR (seemingly uncorrelated Regression), since the test on model are not comply with the assumption of homoscedisity and non serial correlation (see attachment 2). The result of the empirical model 2 is:

$$LNFV_{i,t} = [-0,0558\ LNFV_{i,t}IC_{i,t} - 0,2217\ NPL_{i,t}IC_{i,t} \times 0,0475\ LNFV_{i,t}NPL_{i,t}]$$
$$+ [-0,0372\ LNFV_{i,t}GCG_{i,t} - 0,0216\ NPL_{i,t}GCG_{i,t} \times 0,0475\ LNFV_{i,t}NPL_{i,t}]$$
$$+ [-0,3654\ LNFV_{i,t}ROA_{i,t} - 1,2044\ NPL_{i,t}GCG_{i,t} \times 0,0475\ LNFV_{i,t}NPL_{i,t}]$$
$$+ [-1,7582\ LNFV_{i,t}LNGDP_{i,t} - 3,1747\ NPL_{i,t}LNGDP_{i,t} \times 0,0475\ LNFV_{i,t}NPL_{i,t}]\ \varepsilon_{2i,t}$$

The coefficients of path analysis could be expressed in a metric which is called standardized. The path analysis regression performed on all variables that have been transformed into standardized variables and the purpose is to explain the proportions of variance and the correlations among variables (Carey,1998). The following is path analysis restructuring which is using standardized units (figure 3).

Figure – 3: *Path Analysis Restructuring by Standardized Coefficient*

4.4.3 Model of Total Effect
4.4.3.1 Impact of Total Intellectual Capital (IC) on Firm Value (LVFV)

$$LN\widehat{FV}_{i,t} = \rho LNFV_{i,t}IC_{i,t} + \rho NPL_{i,t}IC_{i,t} \times \rho LNFV_{i,t}NPL_{i,t}$$

Which:

$\rho LNFV_{i,t}IC_{i,t}$ is direct effect of IC on LNFV

$\rho NPL_{i,t}IC_{i,t} \times \rho LNFV_{i,t}NPL_{i,t}$ is indirect effect of IC on LNFV through intervening of NPL

The result is :

$LNFV_{i,t} = [-0,0558\ LNFV_{i,t}IC_{i,t} - 0,2217\ NPL_{i,t}IC_{i,t} \times 0,0475\ LNFV_{i,t}NPL_{i,t}]$

- Direct effect IC on LNFV

$$\rho LNFV_{i,t}IC_{i,t} = -0,0558$$

- Indirect effect IC on LNFV through NPL

$$\rho NPL_{i,t}IC_{i,t} \times \rho LNFV_{i,t}NPL_{i,t} = -0,2217\ \text{x}\ 0,0475 = -0,0105$$

- **Total effect IC on LNFV*: –0,0558 – 0,0105 = –0,0663**

4.4.3.2 Impact of Good Corporate Governance (GCG) on Firm Value (LNFV)

$$LN\widehat{FV}_{i,t} = \rho LNFV_{i,t}GCG_{i,t} + \rho NPL_{i,t}GCG_{i,t} \times \rho LNFV_{i,t}NPL_{i,t}$$

Where:

$\rho LNFV_{i,t}GCG_{i,t}$ is direct effect of GCG on LNFV

$\rho NPL_{i,t}GCG_{i,t} \times \rho LNFV_{i,t}NPL_{i,t}$ is indirect effect of GCG on LNFV through intervening of NPL

The result is :

$LNFV_{i,t} = [-0,0372\ LNFV_{i,t}GCG_{i,t} - 0,0216\ NPL_{i,t}GCG_{i,t} \times 0,0475\ LNFV_{i,t}NPL_{i,t}]$

- Direct effect GCG terhadap LNFV

$$\rho LNFV_{i,t}GCG_{i,t} = -0,0372$$

- Indirect effect GCG on LNFV through NPL

$$\rho NPL_{i,t}GCG_{i,t} \times \rho LNFV_{i,t}NPL_{i,t} = -0,0216\ \text{x}\ 0,0475 = -0,0010$$

- **Total effect GCG on LNFV: –0,0372 – 0,0010 = –0,0382**

4.4.3.3 Impact of Retrun on Assets (ROA) on Firm Value (LNFV)

$$LN\widehat{FV}_{i,t} = \rho LNFV_{i,t}ROA_{i,t} + \rho NPL_{i,t}ROA_{i,t} \times \rho LNFV_{i,t}NPL_{i,t}$$

Where:

$\rho LNFV_{i,t}ROA_{i,t}$ is *direct effect* of ROA on LNFV

$\rho NPL_{i,t}ROA_{i,t} \times \rho LNFV_{i,t}NPL_{i,t}$ is *indirect effect* of ROA on LNFV through intervening NPL

The result is: $LNFV_{i,t} = [0,3654\ LNFV_{i,t}ROA_{i,t} - 1,2044\ NPL_{i,t}ROA_{i,t} \times 0,0475\ LNFV_{i,t}NPL_{i,t}]$

- *Direct effect* ROA on LNFV

$$\rho LNFV_{i,t}ROA_{i,t} = 0,3654$$

- *Indirect effect* ROA on LNFV through NPL

$$\rho NPL_{i,t}ROA_{i,t} \times \rho LNFV_{i,t}NPL_{i,t} = -1,2044\ \text{x}\ 0,0475 = -0,0572$$

- ***Total effect* ROA on LNFV; 0,3654 - 0,0572 = 0,3082**

4.4.3.4 Impact of Economic Growth (LNGDP) on Firm Value (LNFV)

$$\widehat{LNFV}_{i,t} = \rho LNFV_{i,t}LNGDP_{i,t} + \rho NPL_{i,t}LNGDP_{i,t} \times \rho LNFV_{i,t}NPL_{i,t}$$

Where:

$\rho LNFV_{i,t}LNGDP_{i,t}$ is *direct effect* of LNGDP on LNFV

$\rho NPL_{i,t}LNGDP_{i,t} \times \rho LNFV_{i,t}NPL_{i,t}$ is *indirect effect* of LNGDP on LNFV through NPL

The result is:

$LNFV_{i,t} = [-1,7582\ LNFV_{i,t}LNGDP_{i,t} - 3,1747\ NPL_{i,t}LNGDP_{i,t} \times 0,0475\ LNFV_{i,t}NPL_{i,t}]$

- *Direct effect* LNGDP on LNFV

  $\rho LNFV_{i,t}LNGDP_{i,t} = -1,7582$

- *Indirect effect* LNGDP on LNFV through NPL

  $\rho NPL_{i,t}LNGDP_{i,t} \times \rho LNFV_{i,t}NPL_{i,t} = -3,1747 \times 0,0475 = -0,1508$

- **Total effect LNGDP on LNFV: –1,7582 – 0,1508 = –1,9090**

FINDING AND DISCUSSION

This study is to examine relationship among variables, by running multiple regression focucing on causality direct effect of IC, GCG, ROA, GDP on FV and indirect effect through NPL on FV.

In reference on statistical regression result at 95% level of confidence, it confirmed, that:

H₁: IC factors have a considerable impact on Firm Value, is accepted

IC has significant direct effect on FV negatively; coefficient –0,0558

$\rho LNFV_{i,t}IC_{i,t} = -0,0558$

Which is explained that 1% growth of IC in SOB will decrease FV by –0,0558.

IC has significant indirect effect on FV negatively through intervening of NPL; coefficient – 0,0105.

$\rho NPL_{i,t}IC_{i,t} \times \rho LNFV_{i,t}NPL_{i,t} = -0,2217 \times 0,0475 = -0,0105$

Which is explained that 1% growth of IC and intervening by NPL in SOB will decrease FV by -0,0105.

IC has significant total effect on FV negatively ; coefficient –0,0663

Total effect IC on LNFV ; –0,0558 – 0,0105 = –0,0663

Which is explained that 1% growth of IC in SOB will have total effect decrease FV by –0,0663

This finding is supported by prior research result; which is suggested that human capital directly increase in firm salary spending, which is not supported by increasing in productivity , the circumstances impact of reducing firm's value (Taufik et al., 2017; Hussain et al., 2010;). This paper finding is cons with prior research result ; which is affirmed that Human capital efficiency, Structural capital efficiency and Capital employed efficiency are considered to support firm performance by it roles respectively (Guimon, 2005; Pulic, 2004; Bontis, 1998; Maheran, 2009; Kamal et al, 2012; Berzkalne and Zelgalve, 2014; Chen et al., 2005; Tam and Tan 2007; Putra 2012; Cigerand Topsakal, 2015; Nuryaman, 2015; Tsai et al., 2013). Then, in reserach of Maditinos et al., (2011) claimed that human capital efficiency is insignificant relationship with firm value in term of financial performance. Also, this paper finding against behavioral theory (Cyert & March 1963) of

which mention that firms create value by compensating for the individuals cognitive limitations, thereby enabling more rational decisions. Hence, the SOB operation either in financial or market standing is fully back up by government, the circumstances create good level of confidence in firm sustainability. So any corporate action might be less impact or has anomaly impact on firm value.

H₂: GCG factors have a considerable impact on Firm Value, is accepted;

GCG has significant direct effect on FV negatively; coefficient –0,0372

$$\rho LNFV_{i,t}GCG_{i,t} = -0,0372$$

Which is explained that 1% growth of GCG in SOB will decrease FV by –0,0372.

GCG has significant indirect effect on FV negatively through intervening of NPL; coefficient –0,0100.

$$\rho NPL_{i,t}GCG_{i,t} \times \rho LNFV_{i,t}NPL_{i,t} = -0,0216 \times 0,0475 = -0,0010$$

Which is explained that 1% growth of GCG and intervening by NPL in SOB will decrease FV by –0,0100.

GCG has significant total effect on FV negatively ; coefficient –0,0663

Total effect GCG on LNFV: –0,0372 – 0,0010 = –0,0382

Which is explained that 1% growth of GCG in SOB will have total effect decrease FV by -0,0382

Increasing on number of director will lead a slow decision making, and then create new conflict between individual target and board target (Durkheim, 1964); the bigger director board tend to have seriously collusion (Brickley and James,1987). Gill and Mathur (2011), Yermack (1996); Eisenberg, et al., (1998), Alonso, et al., (2005), Gil and Obradovich (2012), Taufik et al., (2017) have similar finding that increasing on number of director is negatively impact on firm value. Increasing number of auditor has negative impact on firm value, which is explained that the additional auditor is not perform as expected; so affecting firm report apocryphal (Arifin Suhadak et al., 2012; Siahaan, 2013; Ghabayen, 2012). The contrary finding is explained by Nhan and Quy (2013), Bathula (2008), Al-Matari et al., (2012) that number of director impact firm value positively.

H₃: Return on Asset (ROA) have a considerable impact on Firm Value, is accepted.

ROA has significant direct effect on FV negatively; coefficient –0,3654

$$\rho LNFV_{i,t}ROA_{i,t} = 0,3654$$

Which is explained that 1% growth of ROA in SOB will decrease FV by –0,3654.

ROA has significant indirect effect on FV negatively through intervening of NPL; coefficient –0,0572.

$$\rho NPL_{i,t}ROA_{i,t} \times \rho LNFV_{i,t}NPL_{i,t} = -1,2044 \times 0,0475 = -0,0572$$

Which is explained that 1% growth of ROA and intervening by NPL in SOB will decrease FV by –0,0572.

ROA has significant total effect on FV negatively ; coefficient – 0,0382

Total effect ROA on LNFV: –0,0372 – 0,0010 = –0,0382

ROA has significant total effect on FV negatively; coefficient –0,0663 at 95% level of confidence.

Which is explained that 1% growth of ROA in SOB will have total effect decrease FV by −0,0382

Return on Asset (ROA) is firm performance indicator (Benner & Veloso, 2008; McNamara & Duncan, 1995). Increasing of ROA has negative impact on firm value, since the high return motivated management to diversified investment in new business or do expansion might be both, which is affect and lower existing profitability. This paper finding is supported by research of Suranta and Pratana (2004); Marangu and Jagongo (2014). But the cons result is suggested by Carlson and Bathala (1997), Makaryawati (2002), Ulupui (2007), Bambang Sudiyatno (2010), Gill and Obradovich, (2012), Tandelilin,(2001); in their research find that ROA has positive impact on firm value.

H$_4$: Gross Domestic Product (GDP) have a considerable impact on Firm Value, is accepted

GDP has significant direct effect on FV negatively; coefficient −1,7582

$$\rho LNFV_{i,t} LNGDP_{i,t} = -1,7582$$

Which is explained that 1% growth of GDP in SOB will decrease FV by −1,7582.

GDP has significant indirect effect on FV negatively through intervening of NPL; coefficient −0,1508.

$$\rho NPL_{i,t} LNGDP_{i,t} \times \rho LNFV_{i,t} = -3,1747 \times 0,0475 = -0,1508$$

Which is explained that 1% growth of GDP and intervening by NPL in SOB will decrease FV by −0,1508.

GDP has significant total effect on FV negatively ; coefficient −1,9090

Total effect LNGDP on LNFV: −1,7582 − 0,1508 = −1,9090

Which is explained that 1% growth of ROA in SOB will have total effect decrease FV by −1,9090 The economic growth has impact on investors behavior in running business, the postive growth of economic provokes enthusiasm both in new investment and business expansion. The economic growth is measured by GDP (Booth et al., 2001; Chadegani et al., 2011; Lemma and Negash, 2013), which the finding in this paper that growth of GDP has negatively impact on firms' value. The same result by Ater (2017), suggested that when GDP growth increases, companies tend to expand by long term debts to support short term investment.

CONCLUSION

Refer to the research findings; it shown that all hypothesis is accepted and all independence variables negatively impact on SOBs' firm value. The findings'core message is unique; revealed that any positive or good action taken by management is not absolutely has appreciated by investors in stock market. So the evaluation of firm value by stock market price not merely depends on financial and management performance, since investors are chasing firm's sustainability; which is guaranted by ownership status, in this study is Ministry of Finance, Republic of Indonesia. On that circumstances investors are ignoring the impact of management and financial performance on firm's value, due to the firm value mostly depends on investors behaviour and appreciation in exchange market. While the stock market bullish, the firms value will follow no matter what the financial and

management performance. This prediction is suggested for becoming reseacher to conduct deep exploration on it.

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APPENDIX

Model – 1: *Impact of Intellectual Capital (IC), Good Corporate Governance (GCG), Return on Assets (ROA), and Economic Growth (LNGDP) on Nonperforming Loan (NPL)*

Fixed effect model by SUR estimator

Dependent Variable: NPL?

Method: Pooled EGLS (Cross-section SUR)

Date: 08/24/17   **Time:** 10:31

Sample: 2010 - 2015

Included observations: 6

Cross-sections included: 4

Total pool (balanced) observations: 24

Linear estimation after one-step weighting matrix

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	29.35198	1.318363	22.26395	0.0000
IC?	-0.221728	0.029740	-7.455469	0.0000
GCG?	-0.021557	0.023112	-0.932701	0.3648
ROA?	-1.204386	0.100151	-12.02569	0.0000
LNGDP?	-3.174689	0.178638	-17.77159	0.0000
Fixed Effects (Cross)				
_BBNI--C	0.074719			
_BBRI--C	1.497434			
_BBTN--C	-1.443483			
_BMRI--C	-0.128670			

Effects Specification
Cross-section fixed (dummy variables)

Weighted Statistics			
R-squared	0.991393	Mean dependent var	27.78745
Adjusted R-squared	0.987628	S.D. dependent var	25.44231
S.E. of regression	1.072710	Sum squared resid	18.41130
F-statistic	263.2851	Durbin-Watson stat	1.785576
Prob (F-statistic)	0.000000		

Unweighted Statistics			
R-squared	0.839536	Mean dependent var	2.525833
Sum squared resid	2.266551	Durbin-Watson stat	1.253582

Model – 2: *Impact of Intellectual Capital (IC), Good Corporate Governance (GCG), Return on Assets (ROA), and Economic Growth (LNGDP) on Firm Value (LNFV) through Non-Performing Loan (NPL) as Intervening Variable*

Fixed effect model by SUR estimator

Dependent Variable: LNFV?

Method: Pooled EGLS (Cross-section SUR)

Date: 08/24/17   **Time:** 10:55

Sample: 2010 - 2015

Included observations: 6

Cross-sections included: 4

Total pool (balanced) observations: 24

Linear estimation after one-step weighting matrix

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	12.42003	2.712522	4.578777	0.0004
IC?	-0.055760	0.009916	-5.623129	0.0000
GCG?	-0.037202	0.006237	-5.964284	0.0000
ROA?	0.365385	0.032174	11.35642	0.0000
LNGDP?	-1.758242	0.394968	-4.451610	0.0005
NPL?	0.047485	0.018591	2.554247	0.0220
Fixed Effects (Cross)				
_BBNI--C	-0.075214			
_BBRI--C	0.010684			
_BBTN--C	-0.191315			
_BMRI--C	0.255845			

Effects Specification		
Cross-section fixed (dummy variables)		

Weighted Statistics			
R-squared	0.974480	Mean dependent var	-0.934409
Adjusted R-squared	0.960870	S.D. dependent var	10.45126
S.E. of regression	1.070752	Sum squared resid	17.19766
F-statistic	71.59807	Durbin-Watson stat	1.958292
Prob (F-statistic)	0.000000		

Unweighted Statistics			
R-squared	0.910082	Mean dependent var	0.652310
Sum squared resid	0.330161	Durbin-Watson stat	2.163922